

CHAPTER V:
PROJECTIONS

Chapter V: **PROJECTIONS**

The main purpose of providing population and land use projections is to establish benchmarks against which future land use decisions regarding the type, mix, character and quantity of future development products may be tested. This study focuses on those relationships for a defined planning period that extends from 1997 to 2015. In order to accurately project future land use demand, the “Projections” chapter will include the following data and analysis: population projections, household projections, residential land demand, retail sales projections, retail land demand, employment projections and office and industrial land demand.

Population Projections

Population growth will greatly influence future demands for residential, office, retail and industrial property in the Town of Smithfield. Population forecasting is at best an “educated guess.” For this reason, population forecasts developed in conjunction with the Town’s Comprehensive Plan Update should be used only in the context of establishing a generalized analytical framework for the allocation of future land uses.

The future number of persons who choose to live in Smithfield will be influenced by market forces and the growth management policies of the Town, Isle of Wight County and other neighboring jurisdictions, in addition to several other inter-related factors. Thus, Smithfield’s population growth must be viewed in a regional context. While it is reasonably clear that a significant amount of growth will occur within the land area annexed by the Town from Isle of Wight County on January 1, 1998, it is difficult to predict precisely the pace at which this future development will occur because of the changing availability of land served by adequate community facilities.

In order to provide an analysis of the appropriate regional context of population growth, Table V-1 has been included on the following page to exhibit the past levels of growth throughout the Smithfield region between 1970 and 1990. As is reflected in the table, Smithfield has grown at a compound annual rate of 2.3% during this time, faster than any of its regional neighbors.

The Weldon Cooper Center for Public Service provides population estimates and projections for cities and counties within the Commonwealth. Unfortunately, the Cooper Center does not provide such estimates and projections for towns within the Commonwealth. Nevertheless, Table V-2 on the following page represents the Cooper Center’s latest estimates for the region. Included in this table is the 1996 estimate of Smithfield’s population (5,315). Based on this estimate, Smithfield has continued to outpace its neighboring localities in growth with its 2.1% compound annual rate of increase.

Table V-1
Smithfield and the Region
Comparative Population Growth: 1970-1996
Compound Annual Growth

	1970 Population	1980 Population	1970-1980 Compound Annual Growth	1990 Population	1980-1990 Compound Annual Growth	1996 Population	1990-1996 Compound Annual Growth
Smithfield	2,713	3,718	3.2%	4,686	2.3%	5,315	2.1%
Isle of Wight	18,285	21,603	1.7%	25,053	1.5%	28,200	2.0%
Newport News	138,177	144,903	0.5%	170,045	1.6%	177,500	0.7%
Hampton	120,779	122,617	0.2%	133,793	0.9%	137,700	0.5%
Suffolk	45,024	45,621	0.1%	52,141	1.3%	57,600	1.7%
Region	322,265	334,744	0.4%	381,032	1.3%	401,000	0.9%

Sources: Bureau of the Census, Cooper Center for Public Service

Table V-2
Smithfield and the Region
Population Estimates: 1990-1996

Jurisdiction	1990 Population	1990 Population: % of Region	1990-1996 Growth Increment	1990-1996 Growth: % of Region	1996 Population	1996 Population: % of Region	1990-1996 Compound Annual Growth Rate
Smithfield							
exclusive of annexation	4,686	1.2%	629	3.4%	5,315	1.3%	2.1%
inclusive of annexation							
Isle of Wight							
exclusive of annexation	25,053	6.6%	3,147	17.0%	28,200	7.0%	2.0%
inclusive of annexation							
Newport News	171,439	44.8%	6,061	32.7%	177,500	44.3%	0.6%
Hampton	133,811	35.0%	3,889	21.0%	137,700	34.3%	0.5%
Suffolk	52,143	13.6%	5,457	29.4%	57,600	14.4%	1.7%
Region	382,446	100.0%	18,554	100.0%	401,000	100%	0.8%

Source: Bureau of the Census, Cooper Center for Public Service

Tables V-3 and V-4 below provide the Cooper Center's latest projections for Isle of Wight County, inclusive of the Town of Smithfield, and four other neighboring cities in the Tidewater Region for the years 2000 and 2010, respectively. The Cooper Center projects only as far as the year 2010 for these localities. As is reflected in these two tables, the Cooper Center is projecting that the future annual compound growth rates for each of the localities in the region will continue to decrease over time.

Table V-3
Smithfield's Region of Influence
Population Estimates: 1996-2000

	1996 Population	1996 Population: % of Region	1996-2000 Growth Increment	1996-2000 Growth: % of Region	2000 Population	2000 Population: % of Region	Compound Annual Growth Rate
Isle of Wight	28,200	7.0%	2,277	14.4%	30,477	7.3%	1.96%
Newport News	177,500	44.3%	7,287	46.0%	184,787	44.3%	1.01%
Hampton	137,700	34.3%	4,410	27.8%	142,110	34.1%	0.79%
Suffolk	57,600	14.4%	1,882	11.9%	59,482	14.3%	0.81%
Region	401,000	100.0%	15,856	100.0%	416,856	100.0%	0.65%

Source: Bureau of the Census, Cooper Center for Public Service

Table V-4
Smithfield's Region of Influence
Population Estimates: 2000-2010

	2000 Population	2000 Population: % of Region	2000-2010 Growth Increment	2000-2010 Growth: % of Region	2010 Population	2010 Population: % of Region	Compound Annual Growth Rate
Isle of Wight	30,477	7.3%	3,806	13.9%	34,283	7.7%	1.2%
Newport News	184,787	44.3%	14,045	51.3%	198,832	44.8%	0.7%
Hampton	142,110	34.1%	4,538	16.6%	146,648	33.0%	0.3%
Suffolk	59,482	14.3%	5,011	18.3%	64,493	14.5%	0.8%
Region	416,856	100.0%	27,400	100.0%	444,256	100.0%	0.6%

Source: Bureau of the Census, Cooper Center for Public Service

In order to provide a projection for the Town of Smithfield, two different methods have been used: the straight-line method and the population growth capture method. Both of these methods incorporate an estimate of the future increase in population that the Town will receive from its 1998 annexation of three significant land areas from Isle of Wight County. The Town gained an estimated 352 new residents as part of the annexation according to estimates provided by the Town Staff in its Annexation Report to the State Commission on Local Government. Both projection methods also assume that no further annexation will take place between 1997 and 2015, although the town will be eligible to further annex land in 2007.

Straight-Line Method

The straight-line method uses a locality's past annual population growth rates to make educated guesses concerning future growth. As is reflected in Table V-5 below, three different annual compound growth rates (ranging from 1.8% to 3.0%) were incorporated into the straight-line method in order to provide a reasonable range of what the Town's future population could become. Using the straight-line method, it is estimated that the Town of Smithfield will have between 7,867 and 9,653 residents by the year 2015.

Table V-5
Smithfield Population Projections*
1996 - 2015
Method 1: Straight Line Projection

Projection Range	Annual Growth Rt.	1996 Population	Annex. Increment	Total with Annexation	2000 Population	2005 Population	2010 Population	2015 Population
LOW	1.8%	5,315	352	5,667	6,075	6,622	7,218	7,867
MEDIUM	2.5%	5,315	352	5,667	6,234	7,013	7,890	8,876
HIGH	3.0%	5,315	352	5,667	6,347	7,299	8,394	9,653

* Does not account for annexation totals

** Assuming a constant compound annual growth rate.

Population Growth Capture Method

The Population Growth Capture Method is slightly different from the Straight Line Method in that it uses the Cooper Center estimates for Isle of Wight County as the basis for projecting Smithfield's future population growth. This strategy is based on the assumption that Smithfield will continue to absorb a certain percentage of the projected growth for Isle of Wight County given the Town's role as the primary urban area in the County. According to the 1990 Census, Smithfield constituted 18.7% of the total population of Isle of Wight County. Based on the population estimates provided in Table V-2, Smithfield captured approximately 20% of the total population growth in Isle of Wight County between 1990 and 1996. However, with the Town annexing 3.9 square miles of largely undeveloped County property in 1997, it is assumed that this capture rate will increase by a significant amount in the next ten to twenty years. Thus, three different capture rates (between 25% and 40%) were incorporated into the population growth capture method in order to provide a reasonable range of predicted future growth in the Town. This method assumes that the Town will capture a constant annual percentage of Isle of Wight's growth between 1996 and 2015. Using this method, it is projected that the Town of Smithfield could grow to a total population of between 7,715 and 8,943 by 2015 (see Table V-6 on the following page).

Summary of Population Projections

Although each method used above utilizes a different approach in projecting future population growth, both are based entirely on historical growth trends within the region and assume a relatively rapid pace of continued growth. Neither, however, factors in the "supply side" of the future population growth equation. In other words, both methods are based solely on demographic statistical demand absent of any consideration of the political boundaries or physiographic features or the economic or political contingencies that could limit future development within the Town. Clearly, these factors will need to be considered along with these conservative population projections in the process of making sound future land use decisions.

In the meantime, these figures can be used to aid in the forecasting of future land demands, community facility demands and infrastructure support requirements. Based upon the results obtained using each of the two methods described hereinabove, it is projected that the Town of Smithfield will have a total population of between 7,715 and 9,653 by the year 2015. This would represent an increase of between 2,400 and 4,338 new residents during the upcoming twenty-year planning period.

Table V6
 Smithfield Population Projections
 1996-2015
 Method 2: Population Growth Capture Method

		1996 Population	Amexation Adjustment	1996/2000 Growth Increment	2000 Population	2000/2005 Growth Increment	2005 Population	2005/2010 Growth Increment	2010 Population	2010/2015 Growth Increment	2015 Population
Isle of Wight County		28,200	N/A	2,277	30,477	1,873	32,350	1,983	34,333	2,107	36,440
Smithfield											
	Projection Range										
	Growth Capture Rte										
LOW	25%	5,315	352	559	6,236	488	6,705	488	7,188	527	7,715
MEDIUM	30%	5,315	352	668	6,350	562	6,912	560	7,472	622	8,094
HIGH	40%	5,315	352	911	6,578	749	7,327	773	8,100	843	8,943

* Assuming that Smithfield will capture a constant annual percentage of Isle of Wight County's growth rate.

Residential Land Area Requirements

A major objective of the Comprehensive Plan is to identify adequate areas for future development of appropriate residential housing units. For the Town of Smithfield to reach its projected 2015 population of between approximately 7867 and 9653, a range of new housing products of varying size, density and pricing must be accommodated within the corporate limits. These housing units will be built upon currently vacant property or developed in concert with the revitalization and redevelopment of existing structures and occupied parcels within the Town.

For planning purposes, it is important to use the average Town household size projections provided by the 1990 Census to forecast the number and type of housing units that may be required to shelter the Town's future growth. Smithfield's estimated current average household size of approximately 2.66 is consistent with regional and State standards. This reinforces the Town trend towards an increasing population of family household formations. Based upon Smithfield's average household size, it is projected that approximately 926 new households will be formed between 1996 and 2015, assuming that 75% of the projected population growth during this time will represent new household formations.

The amount of land that will be required to accommodate future housing units will be a function of the density of residential development allowed for differing housing products within the Town. Generally, housing type and density are related in the following manner:

- *Suburban single family detached residences at 1-3 dwelling units per acre;*
- *Townhouses at 6-8 dwelling units per acre; and*
- *Apartments at 12-14 dwelling units per acre.*

Obviously, the demand for housing types is influenced by many factors, including size of household, household composition and household income. In adhering to Town housing goals, the Plan's residential land use designations should allow enough flexibility to provide housing opportunities for persons of all economic backgrounds, focusing particularly on providing more single family detached residential housing opportunities.

The planning process should strive to reserve adequate and sufficient residential land areas for housing orientations satisfying the full range of potential development densities. Accordingly, the average residential density is based on 36 dwelling units per acre. This average density may be applied to the projected level of new household formations to determine a range of anticipated acreage demanded for new housing in the near planning term. As can be seen in Table V-7 on the following page, a range of between 154 and 309 acres is anticipated to be absorbed for new housing between 1996 and 2015.

Table V-7

Smithfield Housing Demand:
Projection
1996-2015

Planning Timeframe	Population Growth (1)	Household Growth (2) (Units)	Gross Development Area (3) (Acres)
1996-2000	977	277	46 - 92
2000-2015	2,208	649	108 - 216
1996-2015 Total:	3,185	926	154 - 309

(1) Based on Weldon Cooper Center for Public Service, HRPDC & Cox Company projections.

(2) Based on projected household size of 2.65 for 2000 & 2.55 for 2015.

Assuming 75% of population growth between 1996 & 2015 represents new households.

(3) Based on average residential density of 3-6 du/ac.

Retail Land Area Requirements

An extended market analysis of existing retail sales volumes was developed in order to forecast the amount of commercial land which should be accommodated in the Comprehensive Plan. In basic terms, future sales volumes, and, hence, retail spatial demands for Isle of Wight County are projected based on the increased buying power of the anticipated future population growth increment. Since no Town-specific retail sales information data is available, County retail sales data is used for this retail market analysis. Using this sales data provided by the State Department of Taxation, per capita sales figures were calculated across over forty sales categories for the County. This County-based ratio is employed in computing linear extensions of future retail sales growth based on the forecasted population increases.

As is reflected in Tables V-8, V-9 and V-10 on the following pages, Isle of Wight County should realize an increase of between approximately \$48 million in retail sales between 1996 and 2015. Reflected in this figure is the assumption that the existing store mix, tourist trade, and local buying power will continue at approximately the same pace over the projection timeframe. Although the development of a new shopping center and improvements to existing retail outlets in the Smithfield area may, in some ways, alter the character of the sales in the region, the retail market analysis model provides sufficient reliability to make commercial land areas assignments.

In order to calculate the Town's share of projected County retail sales growth, a retail "capture" rate (the percentage of the County's commercial trade expansion which will locate within the Town's corporate limits) must be carefully analyzed. Based on the existing retail share relationship within the region (the Town currently captures approximately 67% of existing regional sales) and retail growth precedents in similar communities throughout the State, the Town should anticipate and plan for the potential "capture" of between 67% and 75% of the region's consumer retail trade growth between 1996 and 2000. Based on current projections of retail growth in the outlying areas of the County, particularly with respect to the planned Eagle Harbor project, it is estimated that the Town's share of overall County retail growth will decrease to between 60% to 70%, as is reflected in Table V-10.

This increase of between \$29.9 million to \$34.5 million of retail trade growth between 1996 and 2015 can be translated into leasable square footage for new stores and total land area requirements to accommodate retail development. As is presented in Tables V-8 through V-10, the sales volumes are converted to Gross Leasable Area based on observed ratios as recommended by the Urban Land Institute. The total development area is then projected by using the basic relationship that for every square foot of leasable space, three additional square feet are needed to provide a suitable and operable business site. These land area requirements include service areas within the building, common areas, minimal open spaces, storage spaces, parking lots and other site features. This generalized market study indicates that the Town will likely absorb between 17.7 and 20.5 acres in new commercial development between 1996 and 2015. The biggest challenge for the Town is to determine the proper locations for retail development and possible redevelopment, and to preserve them for such use.

TABLE V-8

**TOWN OF SMITHFIELD RETAIL SECTOR
PROJECTED 1996-2000 SALES & SPACE DEMAND
FOR SELECTED TRADE GROUPS**

Retail Store Grouping	Town of Smithfield					
	1996 Isle of Wight Retail Sales	1996-2000 Proj. Isle of Wight Retail Growth	1996-2000 Proj. Town Retail Growth (1)	Retail Sales Per Square Foot (2)	Gross Leasable Area (in Square Feet)	Gross Development Area (in Acres) (3)
Apparel Group (LOW projection)	139,107	12,917	8,654	\$170	51	0.00
(HIGH projection)			9,688		57	0.01
Automotive Group	10,252,475	952,008	637,845	\$160	3,987	0.37
			714,006		4,463	0.41
Food Group	60,686,366	5,635,116	3,775,528	\$225	16,780	1.54
			4,225,337		18,784	1.72
* Groceries	43,785,047	4,065,721	2,724,033	\$290	9,393	0.86
			3,049,291		10,515	0.97
* Restaurants	11,640,210	1,080,868	724,181	\$145	4,994	0.46
			810,651		5,591	0.51
Furniture, Home Furnishing and Equipment Group	3,229,953	299,922	200,948	\$135	1,489	0.14
			224,941		1,666	0.15
General Merchandise Group	9,273,853	861,136	576,961	\$150	3,846	0.35
			645,852		4,306	0.40
Lumber, Building Materials and Supply Group	7,400,799	687,211	460,432	\$95	4,847	0.45
			515,409		5,425	0.50
Specialty Retail Groups	21,193,259	1,967,929	1,318,513	\$130	10,142	0.93
			1,475,947		11,353	1.04
* Specialty Retail (4)	3,783,449	651,317	235,383	\$120	1,962	0.18
			263,488		2,196	0.20
* Service/Sales (5)	17,409,810	1,616,612	1,083,130	\$140	7,737	0.71
			1,212,459		8,660	0.80
Total Retail Sector	136,418,186	12,667,299	8,487,091 9,500,474	\$155	54,755 61,293	5.03 5.63

(1) 1996-2000 Smithfield trade projections based on the Town capturing 67% to 75% of the County's projected retail growth.

(2) Retail Sales/Square Foot based on regional norms as developed by ULI in Dollars and Cents of Shopping Centers: 1995.

(3) Gross Development Area estimates based on the following formula: Gross Development Area=[(4.0 * GLA) / 43,560 S.F./AC]

(4) Specialty retail consists of Misc. Group Sales Less Sales/Rental of Personal Property.

(5) Service/Sales consists of Sales/Rental of Personal Property, Hotel/Motel Revenues and Alcoholic Beverage Sales.

TABLE V-9
TOWN OF SMITHFIELD RETAIL SECTOR
PROJECTED 2000-2015 SALES & SPACE DEMAND
FOR SELECTED TRADE GROUPS

Retail Store Grouping	2000 IOW Projected Retail Sales	2000-2015 Proj. Isle of Wight Retail Growth	2000-2015 Proj. Town Retail Growth (1)	Retail Sales Per Square Foot (2)	Town of Smithfield	
					Gross Leasable Area (in Square Feet)	Gross Development Area (in Acres) (3)
Apparel Group (LOW Projection) (HIGH projection)	152,024	36,460	21,876 25,522	\$170	129 150	0.01 0.01
Automotive Group	11,204,483	2,687,185	1,612,311 1,881,029	\$160	10,077 11,756	0.93 1.08
Food Group	66,321,482	15,905,961	9,543,577 11,134,173	\$225	42,416 49,485	3.89 4.54
* Groceries	47,850,768	11,476,107	6,885,664 8,033,275	\$290	23,744 27,701	2.18 2.54
* Restaurants	12,721,078	3,050,911	1,830,547 2,135,638	\$145	12,624 14,729	1.16 1.35
Furniture, Home Furnishing and Equipment Group	3,529,875	846,574	507,944 592,602	\$135	3,763 4,390	0.35 0.40
General Merchandise Group	10,134,989	2,430,687	1,458,415 1,701,481	\$150	9,723 11,343	0.89 1.04
Lumber, Building Materials and Supply Group	8,088,010	1,939,757	1,163,854 1,357,830	\$95	12,251 14,293	1.12 1.31
Specialty Retail Groups	23,161,188	5,554,776	3,332,865 3,888,343	\$130	25,637 29,910	2.35 2.75
* Specialty Retail (4)	4,134,766	991,646	594,988 694,152	\$120	4,958 5,785	0.46 0.53
* Service/Sales (5)	19,026,422	4,563,130	2,737,878 3,194,191	\$140	19,556 22,816	1.80 2.10
Total Retail Sector	149,085,485	35,755,352	21,453,211 25,028,746	\$155	138,408 161,476	12.71 14.83

(1) 2000-2015 Smithfield trade projections based on the Town capturing 60% to 70% of the County's projected retail growth.

(2) Retail Sales/Square Foot based on regional norms as developed by ULI in Dollars and Cents of Shopping Centers: 1995.

(3) Gross Development Area estimates based on the following formula: Gross Development Area=[(4.0 * GLA) / 43,560 S.F./AC]

(4) Specialty retail consists of Misc. Group Sales Less Sales/Rental of Personal Property.

(5) Service/Sales consists of Sales/Rental of Personal Property, Hotel/Motel Revenues and Alcoholic Beverage Sales.

TABLE V-10

**TOWN OF SMITHFIELD RETAIL SECTOR
PROJECTED 1996-2015 SPACE DEMAND
FOR SELECTED TRADE GROUPS**

	1996-2000 (1)		2000-2015 (2)		1996-2015 TOTAL	
Retail Store Grouping	Gross Leasable Area (SF)	Gross Development Area (Acres)	Gross Leasable Area (SF)	Gross Development Area (Acres)	Gross Leasable Area (SF)	Gross Development Area (Acres)
Apparel Group (LOW Projection)	51	0.00	129	0.01	180	0.02
(HIGH Projection)	57	0.01	150	0.01	207	0.02
Automotive Group	3,987	0.37	10,077	0.93	14,063	1.29
	4,463	0.41	11,756	1.08	16,219	1.49
Food Group	16,780	1.54	42,416	3.89	59,196	5.44
	18,784	1.72	49,485	4.54	68,269	6.27
* Groceries	9,393	0.86	23,744	2.18	33,137	3.04
	10,515	0.97	27,701	2.54	38,216	3.51
* Restaurants	4,994	0.46	12,624	1.16	17,619	1.62
	5,591	0.51	14,729	1.35	20,319	1.87
Furniture, Home Furnishing and Equipment Group	1,489	0.14	3,763	0.35	5,252	0.49
	1,666	0.15	4,390	0.40	6,056	0.55
General Merchandise Group	3,846	0.35	9,723	0.89	13,569	1.24
	4,306	0.40	11,343	1.04	15,649	1.44
Lumber, Building Materials and Supply Group	4,847	0.45	12,251	1.12	17,098	1.57
	5,425	0.50	14,293	1.31	19,718	1.81
Specialty Retail Groups	10,142	0.93	25,637	2.35	35,780	3.29
	11,353	1.04	29,910	2.75	41,264	3.79
* Specialty Retail	1,962	0.18	4,958	0.46	6,920	0.64
	2,196	0.20	5,785	0.53	7,980	0.73
* Service/Sales	7,737	0.71	19,556	1.80	27,293	2.51
	8,660	0.80	22,816	2.10	31,476	2.89
Total Retail Sector	54,755 61,293	5.03 5.63	138,408 161,476	12.71 14.83	193,163 222,769	17.74 20.46

(1) 1996-2000 Smithfield trade projections based on the Town capturing 67% to 75% of the County's projected retail growth.

(2) 2000-2015 Smithfield trade projections based on the Town capturing 60% to 70% of the County's projected retail growth.

(3) Gross Development Area estimates based on the following formula: Gross Development Area=[(4.0 * GLA) / 43,560 S.F./AC]

(4) Retail Sales/Square Foot based on regional norms as developed by ULI in Dollars and Cents of Shopping Centers: 1995.

Source: Virginia Department of Taxation
The Cox Company

Employment Forecast

Smithfield is projected to expand its employment base only modestly in future years. This is consistent with its projected slow increase in population. The method used to project the amount of employment growth within Smithfield is founded in the basic relationship that exists between the number of people who live within the region and the number who can find employment within the region (number of employees per population). According to the Virginia Employment Commission's annual state employment report for 1996, Isle of Wight County provides a very attractive rate of 427 jobs per 1,000 residents. This figure is much higher than that of the overall region. Significant job expansion has taken place within the region in the past decade, however, and this trend will have to continue if the region is to sustain this high rate of employment for the population levels projected

In projecting employment levels, it has been assumed that the underlying population forecasts for the region, and more specifically, for the County are accurate. From these figures, we have determined the amount of employment expansion which would have to occur to support this growth. The projected County employment increases reflected in Table V-11 on the following page are obtained by multiplying these ratios by the assumed population growth; i.e. $(\text{Employment Growth} = (\text{Employment} / 1,000 \text{ Population}) * \text{Population Growth})$. As seen in this table, County employment growth projections are summarized for the period between 1996 and 2015. The retail trade industry group is not included within this forecast because retail employment growth is more accurately determined by an analysis of the retail sales projections. For planning purposes, retail employment levels are not critical in the assignment of land uses, since the amount of retail land demands can be more readily predicted from the sales forecasts as outlined in the previous section.

Between 1996 and 2015, an increase of 2437 employment sector personnel (not including the retail sector) are forecast to be employed within Isle of Wight County. The purpose for developing this analysis is to determine the amount of office and industrial land which will be required during the planning period. The following two sections outline the most probable demands for these two land use categories within the Town.

Table V-11

County Employment Projections:

Industry Type	Employment/ 1,000 Population	1996 Emp	1996-2000 Increase	2000 Emp.	2000-2015 Increase	2015 Emp.
Agriculture, Forestry & Fishing	6.70	189	15	204	26	230
Construction	17.70	499	40	539	67	607
Manufacturing	252.48	7,120	575	7,695	961	8,656
Transportation, Communication & Public Utilities	9.15	258	21	279	35	314
Wholesale Trade	10.21	288	23	311	39	350
Finance, Insurance & Real Estate	12.62	356	29	385	48	433
Services	33.23	566	76	641	126	768
Government	42.70	1,204	97	1,301	162	1,464
Total	427	10,480	972	11,356	1,465	12,820

(1) Services excludes hotels & lodging, auto-repair services, misc. repair service, motion pictures, and amus. & recreation services categories.

(2) Retail Sales Trade Group not included, as explained in the Projections chapter.

(3) Employment /1,000 population ratio based on 1996 average total County employment provided by the VEC.

(4) Employment Increase= (Employment/1,000 Population Ratio) * (Projected Pop. Growth/1,000)

Source : Virginia Employment Commission-Quarterly Employment & Wage Data By Size Code Report.

Office Land Area Requirements

Just as with the Retail Land Area projection process, the local market share “capture” technique is employed in the effort to project and allocate the appropriate land areas for office space in the Town. Predicted office growth is correlated to the number and type of firms that are likely to be attracted to the area. The number of employees which will work within these offices is calculated based on the number of future employees in the following industry groups : (1) *Finance, Insurance & Real Estate*; (2) *Services* and (3) *Government employment*.

The land area which will be needed to supply sufficient office space for employment within these sectors is estimated from normative standards for office development and spatial usage. Generally, 200 to 250 square feet of floor area is provided for each employee. The range of requisite floor area is determined by multiplying the number of employees by 200 and 250 SF/Employee, respectively. The total land area is then calculated by applying a FAR (*Floor Area Ratio*) range for suburban office space of .20 -.25. FAR represents the ratio of building area to total site area (*Building Area / Site Area*). Using this method, the County’s office land area demanded by the private sector is projected to be in the range of between 5 and 8 acres (as is reflected in Table V-12 on the following page). Several major factors will influence the quantity of projected regional office growth which the Town stands to capture within its corporate boundaries--1). The relatively abundant amount of attractive (from a locational and economic standpoint) office land available throughout the region, and 2). the incentive, interest and ability of the Town to market itself as a competitive and attractive office-related employment environment in which to work. Given the numerous advantages of sites within its neighboring counties, the Town can expect to capture no more than between 75% to 80% of the projected County share. During the 1996-2015 planning horizon, this constitutes 4 to 6 acres of land demanded specifically for potential office development within the Town.

Table V-12

County Office/Service Acreage Demand
1996-2015

		1996-2000	2000-2015		Total		
	Employment/ Acre (3)	Projected Increase	Projected Acreage	Projected Increase	Projected Acreage	Projected Increase	Projected Acreage
Office/ Service (1)	35	183	3.35	304	5.58	486	8.93
	54		5.24		8.71		13.95
-Private	35	105	1.93	174	3.20	279	5.12
	54		3.01		4.99		8.01
-Public (2)	35	78	1.43	130	2.38	207	3.81
	54		2.23		3.72		5.95

- (1) Office/Service covers employment in 1). Finance, Insurance & Real Estate; 2). Services and 3). 80% of Government Employment.
 (2) Public includes 80% of Government Employment.
 (3) Projections based on 200-250 S.F./Employee and .20 - .25 Floor Area Ratio.
 (4) $\text{Employment/Acre} = 1 / ((\text{SF/Employee}) / \text{FAR} / 43560)$

Industrial Land Area Requirements

Using the same method described in the previous section, industrial land requirements for Smithfield have been analyzed and projected below. By extending current County employment per capita ratios over the 1996-2015 timeframe, the overall increase in industrial-based employment could exceed 1750 employees. Based on modern land use norms, the projected levels of new employment could absorb from 173 to 330 acres of industrial development throughout the region (see Table V-13 below).

The Town of Smithfield has a strong foundation upon which to attract growth in light industry. Several, minor light industries lie scattered within the Town today; although they currently account for a small portion of the overall economic base of Smithfield relative to the meat processing operations in Town. The majority of light industrial enterprises in the County are currently located outside of the Town boundary; however, if the Town were to pursue an aggressive economic development strategy including light industrial development, it is hoped that the Town could achieve a light industrial market share exceeding existing levels. Nevertheless, it is projected that the Town will capture only between 50% to 60% of the forecasted County totals in new light industrial job growth. This projected capture rate translates into potential industrial land area requirements of between approximately 85 and 195 acres in the Town.

Table V-13

County Industrial Acreage Demand 1996-2015

	Employment/ Acre (3)	1996-2000	2000-2015		Total		
		Projected Increase	Projected Acreage	Projected Increase	Projected Acreage	Projected Increase	Projected Acreage
Light Industrial	15	63	3.17	106.4	5.32	169.8	8.49
Industrial Parks (1)	20		4.23		7.09		11.32
-Private		44	2.20 2.93	74	3.70 4.93	118	5.90 7.87
-Public (2)		19	0.97 1.29	32.4	1.62 2.16	51.8	2.59 3.45
Heavy Industrial & Manufacturing	5	575	57.50	961	96.10	1536	153.60
	10		115.00		192.20		307.20
Construction (3)	5	20	4.00	34	6.70	54	10.70
Total		658	64.67 123.23	1,101	108.12 205.99	1,759	172.79 329.22

- (1) Light industrial covers employment in: 1). transportation, communications & public utilities;
2). wholesale trade and 3). 20% of the government group.
(2) Public uses includes 20% of the government group.
(3) Projection includes 50% of total construction employment.
(4) Projections based on standards established by the Urban Land Institute and regional observations.

Urban Land Area Requirements: Summary

Using the projections established in the preceding sections of this chapter, one can begin to obtain a clearer vision of the future demands and pressures that will be placed on the Town's land. Each of these sections has presented the techniques, assumptions and forecasts for future land absorption within the Town for the major private sector land use orientations. Table V-14 on the following page summarizes these demand-based forecasts of urban land area requirements for the year 2015.

Future residential land uses will continue to consume the largest amount of undeveloped Town properties. In comparison to all projected private sector development activities, residential growth will absorb approximately 6 acres out of every 10, with a potential land coverage ranging between 154 and 309 acres by 2015. This residential demand estimate provides a relatively broad band, even for planning purposes. In allocating these future residential demands to available land within the Town, it will be necessary to evaluate several different land use models of residential development density (by type and housing character).

Projected demands for retail, office and industrial space will likely compete, in many instances, for the same available properties. Between approximately 107 and 221 acres will be required to accommodate demands for these three land use orientations during the 20 year planning period. These demands will consume approximately 4 out of every 10 acres of private-sector development (excluding hotels and motels) by the Year 2015.

Estimates of areas to support private-sector development--i.e. future rights-of-way, public easements and public/institutional development--are provided in the urban land use forecasts, as well. Included are land areas which should be contemplated for support municipal services, facilities and infrastructure--ie. public roads, bike trails, developed parks, fire facilities, police and rescue services, schools and the like. Public rights-of-way for roads, streets and sidewalks will consume approximately ten percent of the total areas to be developed for urban land uses, while public and institutional uses will absorb five percent of this total.

The range of 261-531 acres of private sector land use absorption potential assumes that real estate opportunities will be readily available within the Town and that properties will be priced competitively within the regional marketplace. Thus, from a public planning perspective, the future land use plan must provide for choice and not simply allocate "an acre of land for an acre of demand."

Local land use plans can exacerbate this problem by not allocating acreages "over and beyond" the predicted levels of real estate product demands. Table V-14 introduces the concept of "free market multiplier adjustments" in an attempt to compensate for the potential for the Plan to "undersupply" private-sector land uses within the Town's corporate boundaries. This figure simply represents a multiple of actual land use demands yielding a "planning target" acreage to be provided on the master plan. From an economic standpoint, greater opportunities to capture the regional "fair share" of a given land use arise when larger "multipliers" are accommodated on the land use master plan. Where "multipliers" are low, capture potentials diminish from lack of choice, the residual land available for a given use is soon "priced out of the market," and surrounding jurisdictions pick up the spill over demand.

In planning for Smithfield's Year 2015 land use horizon, adhering to a "free market multiplier" equal to 3.0 would direct the land use plan to accommodate a range of 782 to 1594 acres of private-sector development. In the formulation of the General Land Use Plan, the physical land holding capacities of the Town's available undeveloped tracts have been considered to plan a distribution of land uses which both 1). accommodates the projected land demands and 2). preserves Smithfield's distinctive environment.

Table V-14
Land Area Requirements for Urban Land Uses
Smithfield 2015

Land Use Component	Demand Based Acreage	Free Market (AC) * 2.0	Multiplier Adjustments (AC) * 3.0
Residential	154 - 309	308 - 618	462 - 927
Retail (1)	18 - 20	35 - 41	53 - 61
Office (2)	4 - 6	8 - 13	12 - 19
Industrial (3)	85 - 195	170 - 391	255 - 586
Private Sector Subtotals	261 - 531	521 - 1063	782 - 1594
Rights-of-Way (4) Easements	26 - 53	52 - 106	78 - 159
Public/ (5) Institutional	13 - 27	26 - 53	39 - 80
Total Urban Area Requirement	300 - 611	600 - 1222	899 - 1833

(1) Allocation for motels and lodging not included.

(2) Assumes capture of 75%-80% of total County office demands.

(3) Assumes capture of 50%-60% of total County industrial demands.

(4) Assumes 10% of demand based acreage.

(5) Assumes 5% of demand based acreage.